

JOURNAL OF THEORETICAL BIOLOGY

Chief Editor: J. F. DANIELLI

Editorial Board:

E. A. BARNARD
M. CALVIN
J. D. COWAN
D. A. GLASER
B. GOODWIN
D. MAZIA
B. C. PATTEN
A. ROBERTSON
C. H. WADDINGTON
L. WOLPERT
M. YČAS
J. Z. YOUNG

VOLUME 22

January to March 1969



ACADEMIC PRESS
London and New York


QH
301
J75

Copyright © 1969, by Academic Press Inc. (London) Ltd.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Printed in Great Britain



Contents of Volume 22

Number 1, January 1969

REDWOOD, W. R. and HAYDON, D. A., Influence of Temperature and Membrane Composition on the Water Permeability of Lipid Bilayers	1
EVERITT, C. T. and HAYDON, D. A., Influence of Diffusion Layers during Osmotic Flow across Bimolecular Lipid Membranes .	9
EVERITT, C. T., REDWOOD, W. R. and HAYDON, D. A., Problem of Boundary Layers in the Exchange Diffusion of Water across Bimolecular Lipid Membranes	20
ZÁRYBNICKÝ, V., Mechanism of T-even DNA Ejection	33
ROSE, S. and GLOW, P., Ontogeny of Chimaerism and its Sequelae .	43
LEIBOVIC, K. N., Some Problems of Information Processing and Models of the Visual Pathway	62
HORROBIN, D. F., The Female Sex Cycle	80
DE LEY, J., Compositional Nucleotide Distribution and Theoretical Prediction of Homology in Bacterial DNA	89
HAARHOFF, K. N., Use of Multivariate Non-linear Regression Analysis in Fitting Enzyme Kinetic Models. An Empirical Study of the Inhibition of Aspartate Aminotransferase by Dicarboxylic Acid Substrate Analogues	117
HEDDLE, J. A., Influence of False Twins on the Ratios of Twin and Single Sister Chromatid Exchanges	151
KOCH, A. L., CARR, A. and EHRENFELD, D. W., The Problem of Open-sea Navigation: The Migration of the Green Turtle to Ascension Island	163
CHEN, R. L. W. and FONG, P., Helical Configuration of Single-stranded DNA	180
SHEPPARD, C. W. and UFFER, M. B., Stochastic Models for Tracer Experiments in the Circulation. II. Serial Random Walks. .	188

Number 2, February 1969

PELLA, J. J., A Stochastic Model for Purse Seining in a Two-species Fishery	209
JENNRICH, R. I. and TURNER, F. B., Measurement of Non-circular Home Range	227
DEGN, H. and HARRISON, D. E. F., Theory of Oscillations of Respiration Rate in Continuous Culture of <i>Klebsiella aerogenes</i>	238
VOGEL, H., NIEWISCH, H. and MATIOLI, G., Stochastic Development of Stem Cells	249
GIFFORD, G. E. and KOCH, A. L., The Interferon Dose Response Curve and its Possible Significance.	271
O'NEILL, R. V., Indirect Estimation of Energy Fluxes in Animal Food Webs	284
MAGAR, M. E., Analysis of Aggregating Systems	291
NASH, H. A., The Stereoisomers of Retinal—A Theoretical Study of Energy Differences	314
GROSSBERG, S., On the Production and Release of Chemical Transmitters and Related Topics in Cellular Control	325
CONE, C. D., JR., Some Theoretical Aspects of Intercellular Bridges as a Potential Mechanism of Cancerous Proliferation	365

Number 3, March 1969

PENNYCUIK, L., A Computer Model of the Oxford Great Tit Population	381
JOHNSON, R. N. and HANNA, G. R., Membrane Model: A Single Transistor Analog of Excitable Membrane	401
DiSTEFANO, J. J., III, A Model of the Normal Thyroid Hormone Glandular Secretion Mechanism	412
PAVLIDIS, T., Populations of Interacting Oscillators and Circadian Rhythms	418
KAUFFMAN, S. A., Metabolic Stability and Epigenesis in Randomly Constructed Genetic Nets	437

CONTENTS

iii

BRONK, B. V., On Radioactive Labeling of Proliferating Cells: The Graph of Labeled Mitosis	468
SAVAGE, J. R. K. and PAPWORTH, D. G., Distortion Hypothesis: An Alternative to a Limited Number of Sites for Radiation-induced Chromosome Exchange	493
GORDON, R., Polyribosome Dynamics at Steady State	515
LETTERS TO THE EDITOR	
AGIN, D., Comments on Zelman's Letter to the Editor	533
ACLAND, J. D., Energy Transformation in Active Transfer	535
LESK, A. M., Why does DNA contain Thymine and RNA Uracil?	537
DAY, C. E. and LEVY, R. S., A Generalized Functional Role for Phospholipids	541
Announcements	543

